

Claims 12-34 stand withdrawn as being drawn to a non-elected invention.

Claims 1-11, 35-40, 44 and 45 under consideration.

Rejections under 35 USC 103(a)

Claims 1-11, 35-40, 44 and 45 are rejected under 35 USC § 103(a) as obvious over Seltzer, et al., U.S. Pat. No. 5,051,511 (Seltzer '511) in view of Rogers, et al., U.S. Pat. No. 5,459,222 (Rogers '222).

The Examiner again states that Seltzer '511 teaches adding mixtures of UV absorbers and light stabilizing agents, including N,N-diethylhydroxylamine to polymer coating compositions including polyurethane and polyesters. Rogers '222 is cited as teaching that polyurethane and polyester coating compositions which contain UV absorbers can be used to coat paper and textiles to prevent fading of dyes. It is alleged that Rogers '222 teaches specifically Cibafast® W, the sodium salt of 3-(2H-benzotriazol-2-yl)-4-hydroxy-5-sec-butylbenzene sulfonic acid, is a suitable UV absorber.

The Examiner argues that it would have been obvious to one skilled in the art that the polyesters and polyurethanes of Seltzer '511 can be used to coat paper and textiles to prevent fading of dyes, e.g. reducing the loss of brightness, in the manner taught by Rogers '222. The Examiner argues that it would have been *prima facie* obvious based on the cited art to employ Cibafast® W as the benzotriazole UV absorber of Seltzer '511. The Examiner further states that N,N-diethylhydroxylamine citrate (a salt) is an obvious variant of the genus N,N-dialkylhydroxylamine (*sic*).

Applicants respectfully disagree and traverse the present rejections.

Applicants submit that a) those skilled in the art would not combine the two cited references in order to solve the present problem of reducing loss of brightness and providing resistance to yellowing in pulp or paper, b) that even with the cited references in hand, the skilled artisan would not be able to arrive at the present invention and c) those skilled in the art would not be able to choose any particular classes of stabilizers, any particular stabilizer or any particular combination of stabilizers from the cited references with any expectation of success towards solving the present problem.

The focus of Seltzer '511 are hindered amine stabilizers that also contain peroxide linkages. The hindered amine stabilizers therein may be chemically bonded to polymer substrates either through their action as a free radical initiator or through grafting. Further, the Seltzer '511 reference is aimed at hindered amines with low basicity that contain peroxide linkages. The compounds were specifically designed to avoid interaction with acid catalysts used in thermosetting resins (col. 1).

Rogers '222 is aimed at ultraviolet light absorbers (UVA's) chemically bound to polyurethanes or polyesters. The UVA's therein are chemically bound to the polycondensates through the use of a diol containing a pendant UVA moiety.

Seltzer '511 mentions a host of polymer substrates in which the compounds disclosed therein are useful. Seltzer '511 also mentions the optional co-use of a whole host of known stabilizers, including hydroxylamines, for example N,N-diethylhydroxylamine.

The Examiner bases the present rejections on the disclosure in Seltzer '511 that optional stabilizers including N,N-diethylhydroxylamine may be added to for example polyurethane or polyester coating compositions, combined with the Rogers '222 teaching that polyurethane or polyester coating compositions including benzotriazole UVA's can be used to coat paper and textiles to prevent fading of dyes.

Applicants assert that claims 1-11, 35-40, 44 and 45 are not obvious in light of the combined teachings of Seltzer '511 and Rogers '222.

Applicants submit that one skilled in the art would not combine the cited references Seltzer '511 and Rogers '222 in order to solve the problem of preventing loss of brightness and resistance to yellowing of pulp or paper. The following applies:

1) The Rogers '222 reference, although generically mentioning the treatment of paper, only exemplifies the prevention of dye fading in brown aniline leather. There is therefore no motivation provided to combine the two references in order to solve the present problem of preventing loss of brightness and resistance to yellowing in pulp or paper.

2) As clearly discussed in the response filed Oct. 27, 2000, the prevention of dye fading is not the same problem to be solved as retention of brightness in pulp or paper. The behavior of dyes and

lignin-containing pulp or paper in regards to stabilizing compositions differ significantly. The Rogers '222 reference only exemplifies dye fading in brown aniline leather.

3) The Seltzer '511 reference is aimed at thermoset resins such as the coating resins exemplified in working Examples 12-14 therein (automotive coatings). There is no mention in Seltzer '511 as to the stabilization of pulp or paper.

4) Both cited references are aimed at additives that are reactable with polymer (coating) substrates.

5) Applicants aver that paper coatings use natural binders such as starch, soy protein or casein, or synthetic latices made from styrene/butadiene, vinyl acetate, vinyl-acrylic, acrylic or vinyl alcohol polymers. Please see the attached pages from "The Coating Processes", 1993, pages 15-17. Polyurethane and polyester coatings are unknown as paper coatings.

In light of the above discussion, Applicants submit that the skilled artisan would not look to combining the two cited references, aimed at reactable stabilizers meant to solve specific problems, in order to solve the present problem of preventing loss of brightness and resistance to yellowing of paper or pulp. Further, since polyurethane and polyester coatings are unknown as paper coatings, the skilled artisan would clearly not combine the cited references to solve the present problem.

Applicants also submit that with the combination of the Seltzer '511 and Rogers '222 references in hand, that one skilled in the art would not be able to arrive at the compositions of the present invention for a myriad of reasons:

1) Both references are aimed at very specific light stabilizers (hindered amines and UVA's) that are chemically modified in order to be reactable with a polymer. The present hydroxylamine or hydroxylamine salts are not so modified and do not require such modification.

2) The present hydroxylamine or hydroxylamine salts are not of the classes of compounds that are the focus of Seltzer '511 and Rogers '222, that is hindered amines and UVA's.

3) Seltzer '511 only very generically mentions the possible co-use of hydroxylamine stabilizers among a long list of other possible classes of stabilizers.

4) Rogers '222 is specifically aimed at polyesters or polyurethanes chemically bonded to UVA's. Seltzer '511 only generically mentions polyesters and polyurethanes among a whole host of polymer substrates.

5) In the present working examples, the additives are applied to the pulp as an aqueous solution in the absence of any polymer coating. Rogers '222 teaches that unless additives are applied to porous substrates (such as paper) as part of a coating, that their effectiveness is lost (col 1, lines 21-32).

In light of the above, with the cited references in hand, one skilled in the art would have to perform very judicious picking and choosing to arrive at the present invention, that is a stabilized composition comprising pulp or paper and an effective amount of certain hydroxylamines or their salts. An assertion that the present invention is obvious from the combination of the cited references is hindsight analysis.

Further, the Rogers '222 reference does not teach the use of Cibafast® W, the sodium salt of 3-(2H-benzotriazol-2-yl)-4-hydroxy-5-sec-butylbenzene sulfonic acid, but rather teaches that it is an ineffective stabilizer relative to the inventive stabilizers therein. In Example 21 of Rogers '222, cited by the Examiner, Cibafast® W is shown to be ineffective relative to a polymer-bound benzotriazole UVA. The Rogers '222 reference then teaches away from the present invention of a stabilized composition that further comprises Cibafast® W.

In light of the above discussion, Applicants assert that one skilled in the art would not combine the cited references in order to solve the problem of formulating paper or pulp compositions stabilized against the loss of brightness and having resistance to yellowing; that even with the combination of cited references in hand one skilled in the art would not be able to arrive at the present invention; and further that the skilled artisan could not choose specific stabilizers, a specific class of stabilizers, or a combination of specific stabilizers that are very generically disclosed in the cited references with any expectation of success towards preventing brightness loss and yellowing in paper or pulp.

Applicants aver that the present rejections of claims 1-11, 35-40, 44 and 45 under 35 USC 103(a) are addressed and are overcome.


Applicants respectfully request the Examiner to reconsider and to withdraw the rejections.

Applicants also note that claims 44 and 45 are drawn only the elected species, and require component (a) to be the citrate salt of N,N-diethylhydroxylamine. Salts of hydroxylamines are not even generically mentioned in the combination of cited references; Applicants submit therefore that claims 44 and 45 are in condition for allowance. The citrate salt is not an obvious variant of N,N-diethylhydroxylamine as alleged by the Examiner. Applicants submit that an assertion that the citrate salt would be an effective additive to solve the present problem is hindsight analysis.

In view of the all of the above remarks, Applicants submit that claims 1-11, 35-40, 44 and 45 are in condition for allowance and respectfully request the Examiner to find them allowable.

In the Preliminary Amendment filed June 22, 2001 with the filing papers of the present CPA application, Applicants noted and brought to the attention of the Examiner a co-pending application, Ser. No. 09/119,567, filed July 20, 1998, along with a copy of the claims as allowed. Applicants now note that this application has matured into U.S. Pat. No. 6,254,724. A copy of the U.S. Patent is submitted herewith.

Respectfully submitted,



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Attachments: "The Coating Processess", TAPPI Press, 1993, pages 15-17
U.S. Pat. No. 6,254,724